

MEMORANDUM # 1-90

Baseline Hydrologic Data Requirements (PHC Assessment) (issued 1/17/90, updated 10/1/01)

According to §§4 VAC 25-130-780.21 and 4 VAC 25-130-784.14 of the regulations, permit applications must provide data sufficient to make a Probable Hydrologic Consequences (PHC) determination. The surface and ground water monitoring plans are based upon that determination, as well. In addition, the Division uses this data in developing the Cumulative Hydrologic Impact Assessment (CHIA).

The process for developing these plans should –

1. Establish seasonal surface and ground water baseline hydrologic conditions;
2. Describe existing and anticipated impacts;
3. Design the operation to minimize impacts within the permit and adjacent areas and to prevent material damage to the hydrologic balance outside the permit area;
4. Prepare the PHC determination; and,
5. Design a water monitoring plan to quantify actual impacts.

(Existing data may be extrapolated and used in compiling the required information.)

Ground Water Baseline Data -

§§4 VAC 25-130-780.21(b)(1 and 2) and 4 VAC 25-130-784.14(b)(1 and 2) of the regulations require documentation of seasonal quantity and quality of surface and ground waters. A minimum of 6 months of data for both surface and ground waters is required to quantify baseline conditions. The PHC determination cannot be made, nor can the monitoring sites be determined, until seasonal baseline is established. Baseline data in the potential impact area can be established from water supply inventories, surveys of springs, seeps, flooded underground works, mine discharges, streams, and baseline monitoring wells.

The regulations also require a water supply inventory for all supplies in the potential impact area of surface and underground mines. Including complete inventory data with the permit application submittal will strengthen the PHC determination and minimize the permit review processing time.

Geologic Logs –

The location of ground water occurrences must be labeled on the geologic log (§§4 VAC 25-130-780.22(b)(2)(i) and 4 VAC 25-130-784.22(b)(2 and 3)(i)), on the geologic cross-section and the stratigraphic data sheet in the lithology modifiers column. If not available for existing logs, data may be provided by other means. However, the location of ground water occurrences is required on all logs submitted for sections measured or holes drilled.

Narratives –

A narrative must accompany baseline data discussing and interpreting the data significance. The PHC narrative must evaluate all geologic and hydrologic data relative to the

proposed operation (§§4 VAC 25-130-780.21(f) and 4 VAC 25-130-784.14(e)). Using hydrologic baseline data, each water-bearing stratum should be addressed in the narrative with a determination made as to its significance to the hydrologic balance within the cumulative impact area. The potential impact of subsidence should also be discussed in the PHC narrative.

After the baseline conditions have been established, the mining plan developed, and the PHC determination made, the surface and ground water compliance monitoring plans should be developed to determine if the impacts are as anticipated by the PHC.